Journal Index - by Volume

VOLUMES I, II, III, IV

VOLUME I – NO. 1 (Oct./Nov. 1962)

USES OF INFRARED EMULSIONS FOR PHOTOGRAMMETRIC PURPOSES
Dr.–Ing. H. K. Meier, Oberkochen

REQUIREMENTS FOR A DUAL-LENS CAMERA
George W. Thomas, U.S. Naval Ordnance Laboratory

"MOPTS" – A MOBILE PHOTOGRAPHIC TRACKING SYSTEM
George P. Tyson, U.S. Naval Missile Center

NEW CONCEPTS FOR PHOTOGRAPHIC LENS EVALUATION
Dr. Frank G. Back, Zoomar, Inc.

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 2 (Dec. 1962/Jan. 1963)

ATMOSPHERIC LIMITATIONS ON GROUND RESOLUTIONS FROM SPACE PHOTOGRAPHY
Dr. John H. Atkinson, Jr. and Robert E. Jones, Aeronutronic Div., Philco/Ford

A NEW PHOTO-OPTICAL, RANDOM-ACCESS MEMORY
Walter Renold, The Marquardt Corporation

PHOTOGRAPHIC TECHNIQUES FOR PROJECT MERCURY GROUND RANGE EVALUATION
Alan S. Markham, The Bendix Corporation

FUTURE RANGE INSTRUMENTATION
John F. Nicola, Pan American Airways

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 3 (Feb./Mar. 1963)

HIGH-SPEED PHOTOGRAPHIC STUDIES OF DYNAMIC STRESSES IN LOW MODULUS PHOTOELASTIC MATERIALS
Dr. P.D. Flynn, J.T. Gilbert, and A.A. Roll, Frankford Arsenal

A NEW DIGITAL MICROGONIOMETER SHAFT ENCODING SYSTEM FOR HIGH RESOLUTION AND HIGH ACCURACY APPLICATIONS
David W. Comstock, Norden Division of United Aircraft Corporation

RESEARCH AT A GOVERNMENT AGENCY – W.S.M.R.
Dr. Russell K. Sherburne, White Sands Missile Range

IMAGE DISPLACEMENTS ON A TILTED PANORAMIC PHOTOGRAPH
Donald Kawachi, Fairchild Space & Defense Systems

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 4 (Apr./May 1963)

LIGHT ECONOMICS IN HIGH-SPEED PHOTOGRAPHY
Dr. George L. Clark, Space Technology Laboratories, Inc.

A CAMERA PLATFORM IN SPACE
Hans H. Kretschmer, Douglas Aircraft Company, Inc.

ULTRA STABLE CAMERA PLATFORMS
Carl A. Napor, Aeroflex Laboratories, Inc.

THE USE OF HIGH-SPEED CAMERAS FOR METRIC PHOTOGRAPHY
Lincoln L. Endelman, Consultant

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 5 (Jun./Jul. 1963)

AUTOMATIC AND PROGRAMMED TRACKING SYSTEMS FOR OPTICAL INSTRUMENTATION
R.G. Scharrer, Sandia Corporation

IMAGE EVALUATION
R.D. Zakia and H.N. Todd, Rochester Institute of Technology

AIRBORNE CAMERA CAPSULE
Art Block, U.S. Naval Ordnance Test Station

OPTICAL COATINGS
Harold H. Schroeder, Bausch & Lomb, Inc.

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 6 (Aug./Sep. 1963)

A MULTIPLE-SPARK LIGHT SOURCE AND CAMERA FOR SCHLIEREN AND SILHOUETTE PHOTOGRAPHY
David G. Kocher, Massachusetts Institute of Technology

OPTICAL T-BENCH METHOD FOR MEASUREMENT OF OPTICAL PATH DIFFERENCE
Dr. Francis E. Washer and Walter R. Darling, National Bureau of Standards

AN f/0.75 DIFFRACTION LIMITED TRIPLET FOR THE 8-12 MICRON ATMOSPHERIC WINDOW
Thomas P. Vogl, Westinghouse Research Laboratories

PHOTO-OPTICS NOTE BOOK

VOLUME II – NO. 1 (Oct./Nov. 1963)

UNDERWATER PINPOINT PHOTOGRAPHY
Dr. Harold E. Edgerton, Massachusetts Institute of Technology

Journal Index - by Volume

VOLUMES I, II, III, IV

VOLUME I – NO. 1 (Oct./Nov. 1962)

USES OF INFRARED EMULSIONS FOR PHOTOGRAMMETRIC PURPOSES
Dr.–Ing. H. K. Meier, Oberkochen

REQUIREMENTS FOR A DUAL-LENS CAMERA
George W. Thomas, U.S. Naval Ordnance Laboratory

"MOPTS" – A MOBILE PHOTOGRAPHIC TRACKING SYSTEM
George P. Tyson, U.S. Naval Missile Center

NEW CONCEPTS FOR PHOTOGRAPHIC LENS EVALUATION
Dr. Frank G. Back, Zoomar, Inc.

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 2 (Dec. 1962/Jan. 1963)

ATMOSPHERIC LIMITATIONS ON GROUND RESOLUTIONS FROM SPACE PHOTOGRAPHY
Dr. John H. Atkinson, Jr. and Robert E. Jones, Aeronutronic Div., Philco/Ford

A NEW PHOTO-OPTICAL, RANDOM-ACCESS MEMORY
Walter Renold, The Marquardt Corporation

PHOTOGRAPHIC TECHNIQUES FOR PROJECT MERCURY GROUND RANGE EVALUATION
Alan S. Markham, The Bendix Corporation

FUTURE RANGE INSTRUMENTATION
John F. Nicola, Pan American Airways

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 3 (Feb./Mar. 1963)

HIGH-SPEED PHOTOGRAPHIC STUDIES OF DYNAMIC STRESSES IN LOW MODULUS PHOTOELASTIC MATERIALS
Dr. P.D. Flynn, J.T. Gilbert, and A.A. Roll, Frankford Arsenal

A NEW DIGITAL MICROGONIOMETER SHAFT ENCODING SYSTEM FOR HIGH RESOLUTION AND HIGH ACCURACY APPLICATIONS
David W. Comstock, Norden Division of United Aircraft Corporation

RESEARCH AT A GOVERNMENT AGENCY – W.S.M.R.
Dr. Russell K. Sherburne, White Sands Missile Range

IMAGE DISPLACEMENTS ON A TILTED PANORAMIC PHOTOGRAPH
Donald Kawachi, Fairchild Space & Defense Systems

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 4 (Apr./May 1963)

LIGHT ECONOMICS IN HIGH-SPEED PHOTOGRAPHY
Dr. George L. Clark, Space Technology Laboratories, Inc.

A CAMERA PLATFORM IN SPACE
Hans H. Kretschmer, Douglas Aircraft Company, Inc.

ULTRA STABLE CAMERA PLATFORMS
Carl A. Napor, Aeroflex Laboratories, Inc.

THE USE OF HIGH-SPEED CAMERAS FOR METRIC PHOTOGRAPHY
Lincoln L. Endelman, Consultant

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 5 (Jun./Jul. 1963)

AUTOMATIC AND PROGRAMMED TRACKING SYSTEMS FOR OPTICAL INSTRUMENTATION
R.G. Scharrer, Sandia Corporation

IMAGE EVALUATION
R.D. Zakia and H.N. Todd, Rochester Institute of Technology

AIRBORNE CAMERA CAPSULE
Art Block, U.S. Naval Ordnance Test Station

OPTICAL COATINGS
Harold H. Schroeder, Bausch & Lomb, Inc.

PHOTO-OPTICS NOTE BOOK

VOLUME I – NO. 6 (Aug./Sep. 1963)

A MULTIPLE-SPARK LIGHT SOURCE AND CAMERA FOR SCHLIEREN AND SILHOUETTE PHOTOGRAPHY
David G. Kocher, Massachusetts Institute of Technology

OPTICAL T-BENCH METHOD FOR MEASUREMENT OF OPTICAL PATH DIFFERENCE
Dr. Francis E. Washer and Walter R. Darling, National Bureau of Standards

AN f/0.75 DIFFRACTION LIMITED TRIPLET FOR THE 8-12 MICRON ATMOSPHERIC WINDOW
Thomas P. Vogl, Westinghouse Research Laboratories

PHOTO-OPTICS NOTE BOOK

VOLUME II – NO. 1 (Oct./Nov. 1963)

UNDERWATER PINPOINT PHOTOGRAPHY
Dr. Harold E. Edgerton, Massachusetts Institute of Technology

INFRARED – TODAY AND TOMORROW
Irving J. Spiro, Aerospace Corporation

OPTICAL DESIGN OF INFRARED SYSTEMS
R.A. Temple, Electro-Optical Systems, Inc.

INFORMATION PROCESSING IN INFRARED SYSTEMS
Dr. R.H. McFee, Aerojet-General Corporation

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME II – NO. 2 (Dec. 1963/Jan. 1964)

A PROPOSED CODIFICATION FOR PHOTO-OPTICAL INSTRUMENTATION
Jean St. Thomas, RCA Service Corporation

DIFFRACTION BY OPAQUE AND TRANSPARENT PARTICLES
Dr. Brian J. Thompson, Technical Operations Research

RANGE APPLICATION OF LASER SYSTEMS
John F. Cunniff, Perkin-Elmer Corporation

500 MEGAWATT PULSED LASER
A.H. Gillmer and Harvey Schultz, Korad Corporation

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME II – NO. 3 (Feb./Mar. 1964)

AN OPTICAL CHARACTER SCANNER
Dr. Robert J. Potter, International Business Machines Corporation

MAN-MACHINE COLLABORATION IN THE ANALYSIS OF BUBBLE CHAMBER PHOTOGRAPHY FOR HIGH-ENERGY PHYSICS
Dr. Paul V.C. Hough, Brookhaven National Laboratory

PHOTO-OPTICAL FIELD MEASUREMENT BY FLYING SPOT SCANNERS FOR BIOMEDICAL APPLICATIONS
H.P. Mansberg, Airborne Instruments Laboratory (Cutler-Hammer, Inc.)

MACHINE AIDED RECONNAISSANCE PHOTO-INTERPRETATION
Dr. George S. Sebestyen, Litton Systems, Inc.

AUTOMATED STARGAZING
Helen E. Gustafson, Nuclear Research Instruments

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME II – NO. 4 (Apr./May 1964)

IMPROVING INFORMATION TRANSFER FROM DISPLAY TO OBSERVER
Edwin C. Hilborn, ITT Information and Data Systems Division

SOME RECENT DEVELOPMENTS IN DYNAMIC PHOTO-ELASTICITY
Dr. P.D. Flynn, J.T. Gilbert and A.A. Roll, Frankford Arsenal

THE PRACTICAL APPLICATIONS OF MODULATION TRANSFER FUNCTIONS
Dr. Roderic M. Scott, Perkin-Elmer Corporation

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME II – NO. 5 (Jun./Jul. 1964)

SOME CONSIDERATIONS IN USING FIBER OPTICS IMAGE COUPLERS
Howard C. Borough, The Boeing Company

THE U.S. NAVAL ORDNANCE TEST STATION'S EXPERIMENTAL TRACKING ERROR DETECTOR
Dr. Julian L. Thompson, U.S.Naval Ordnance Test Station

IMAGE CONVERTER SHUTTERS
Dr. George L. Clark, Electro-Optical Systems, Inc.

HIGH SPEED PHOTO SYSTEM TO RECORD CRACK PROPAGATION VELOCITIES IN BRITTLE FRACTURES
R. Wayne Anderson, The Dow Chemical Company

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME II – NO. 6 (Aug./Sep. 1964)

A MARS PHOTOGRAPHIC SYSTEM
J. Denton Allen, Jet Propulsion Laboratories

RELATING THE ANSEL ADAMS ZONE SYSTEM TO THE ASA CRITERIA FOR THE DETERMINATION OF FILM SPEEDS
Paul H. Cords, Jr. and David A. Fatora, U.S. Naval Ordnance Laboratory

BALLISTIC CAMERA SYSTEMS APPROACH MATURITY
J.E. Durrenberger, White Sands Missile Range

THE PROJECTION AND VIEWING OF TRANSPARENT IMAGE STORAGE MATERIALS
John D. Hayes, Xerox Corporation

UNDERWATER PHOTOGRAPHIC INSTRUMENTATION DESIGN
Paul J. Kruse, Jr., U.S. Fish & Wildlife Service

PHOTO-OPTICS NOTEBOOK

VOLUME III – NO. 1 (Oct./Nov. 1964)

FOCUS ON THE FUTURE
Brigadier General Harry J. Sands, Jr., Commander, Ballistic Systems Division.

A TELEVISION IMAGE SIMULATOR AND ITS PRACTICAL APPLICATIONS
Rostyslav Shavlach, Radio Corporation of America

TIME-BANDWIDTH COMPRESSION FOR PLANETARY PICTURES
Leonard R. Malling, Jet Propulsion Laboratory

ENHANCEMENT OF PHOTOGRAPHIC SPEED BY ELECTRIC FIELDS
David G. Wiley, Kine-X Engineering Corporation

PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME III – NO. 2 (Dec. 1964/Jan. 1965)

PHOTOGRAPHIC STUDIES OF CONVECTION PATTERNS BETWEEN CONCENTRIC SPHERES
Dr. E.H. Bishop, R.S. Kolflat, Dr. L.R. Mack and Dr. J.A. Scanlan, University of Texas

IMAGE MOTION AND RESOLUTION FOR AIR-TO-AIR PHOTOGRAPHY
Irving J. Spiro, Aerospace Corporation

OPTICAL TECHNIQUES OF VISUAL SIMULATION FOR SPACE TRAVEL
Thomas P. Neuberger, American Car Foundry Industries, Inc.

ENGINEERING PHOTO METHODS FOR TITAN II R&D FLIGHT PROGRAM
Arch D. Smith, Martin-Marietta Corporation

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME III – NO. 3 (Feb./Mar. 1965)

PHOTOGRAPHIC REQUIREMENTS FOR MANNED SPACE MISSIONS
John M. Eggleston and John R. Brinkmann, NASA Manned Spacecraft Center

VIDICON APPLICATIONS FOR SPACE-BORNE TV CAMERAS
M.H. Mesner, Radio Corporation of America

IMPROVED TRAJECTORY RECORDING WITH LASER RANGE-FINDER
Truman G. Bergman, U.S. Naval Ordnance Test Station

SPACECRAFT FILM SYSTEM FOR PLANETARY PHOTOGRAPHY
Albert W. Spitzak, Jet Propulsion Laboratories

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME III – NO. 4 (Apr./May 1965)

IMAGERY WITH COHERENT OPTICS
Emmett N. Leith and Juris Upatnieks, University of Michigan

THE PRAIRIE METEORITE NETWORK
Richard E. McCrosky, Smithsonian Astrophysical Observatory
Harold Boeschenstein, Jr., Harvard College Observatory

SOME APPLICATIONS OF PHOTO-OPTICS IN MEDICAL INFORMATION HANDLING
Alan A. Staley, International Business Machines Corporation

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK - UNDERWATER TECHNIQUES

VOLUME III – NO. 5 (Jun./Jul. 1965)

THE NASA-LRC TELESPECTROGRAPH TEST AND OPERATION RESULTS
James M. Satterfield, NASA Langley Research Center

THE FOSDIC SYSTEM AND THE REQUIREMENTS FOR CLEAN ROOM PRINTING AND PROCESSING
Robert J. Milliken, National Weather Records Center

BRIGHT SPOT DETECTION AND LOCATION IN A SCANNED SCENE
Sol L. Morrison and Norman N. Gutlove, Republic Aviation Corporation

ADVANCES IN IMAGE ENHANCEMENT TECHNIQUES AT THE ATLANTIC MISSILE RANGE
Walter H. Manning, Jr., USAF Eastern Test Range

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME III – NO. 6 (Aug./Sep. 1965)

CHALLENGES FOR TOMORROW
Brigadier General Joseph S. Bleymaier, Commander Air Force Western Test Range

LASER-ILLUMINATED PHOTO-OPTICAL INSTRUMENTATION
Dr. George L. Clark, Electro-Optical Systems, Inc.

RESOLUTION LIMITATIONS OF LENSLESS PHOTOGRAPHY
Dr. George B. Parrent, Jr. and George O. Reynolds, Technical Operations Research, Inc.

THE USE OF CHARACTERISTIC VECTORS IN PHOTO-OPTICAL ANALYSIS
Ronald J. LaVallee, McDonnell Aircraft Corporation

APPLICATIONS OF LASER BEAM SCANNING SYSTEMS EMPLOYING ULTRASONIC TECHNIQUES
Robert K. Erf, United Aircraft Research Laboratories

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 1 (Oct./Nov. 1965)

HOLOGRAMS: THEIR PROPERTIES AND USES
Dr. Emmett N. Leith and Juris Upatnieks, University of Michigan

ADVANTAGES AND PROBLEMS OF COHERENCE AS APPLIED TO PHOTOGRAPHIC SITUATIONS
Dr. Brian J. Thompson, Technical Operations Research

STANDARDS IN PHOTOMETRY
Walter M. Clark, Northrop/Nortronics

COMPUTER ORIENTED MICRODENSITOMETERS
Albert J. Derr, General Aniline & Film Corp.

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 2 (Dec. 1965/Jan. 1966)

DESIGN PARAMETERS OF AN ASTRONOMICAL CAMERA FOR LUNAR CHARTING
Kenneth T. Sime, USAF Aeronautical Chart & Information Center

UNDERWATER LIGHT ATTENUATION MEASUREMENTS
Floyd Kinder, U.S. Naval Ordnance Test Station

HIGH SPEED MACROPHOTOGRAPHY USED IN SEMI-CONDUCTOR MANUFACTURING
Paul C. Pfeiffer, Texas Instruments, Inc.

OCULOMETRY
John Merchant, Honeywell Radiation Center

LIQUID SPACE OPTICS
John H. Bloomer, Consultant

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 3 (Feb./Mar. 1966)

UNDERWATER CAMERA CALIBRATOR
Gomer T. McNeil, Photogrammetry, Inc.

AN INSTRUMENT FOR DETERMINING THE LENS SPECTRAL TRANSMITTANCE
Frank S. Winski, Richard M. Bobbe and Gary K. Starkweather, Xerox Corporation

A STABILITY STUDY OF THE PHOTOGRAPHIC LATENT IMAGE
Gary A. Micanek, McDonnell Aircraft Corporation

LASER SAFETY STANDARDS
Dr. Norman A. Peppers, Optics Technology, Inc.

SYMBOLS, UNITS AND NOMENCLATURE FOR ATMOSPHERIC TRANSMISSION
Irving J. Spiro, Aerospace Corporation
Dr. R. Clark Jones, Polaroid Corporation
Dr. David Q. Wark, Environmental Science Services Administration

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 4 (Apr./May 1966)

PROCESSING RANGER AND MARINER PHOTOGRAPHY
Fred C. Billingsley, Jet Propulsion Laboratory

OCEAN BOTTOM PHOTOGRAPHY FROM A DEEP TOWED CAMERA SYSTEM
Walter L. Brundage, Jr. and R.B. Patterson, U.S. Naval Research Laboratory

AUTORADIOGRAPHY OF NUCLEAR MATERIALS
J.L. Hascall and G.R. Horn, Battelle Memorial Institute

CINEMICROGRAPHY IN CELL BIOLOGY
Arthur T. Brice, Phase Films.

NEW PRODUCT DEVELOPMENT FROM A RESEARCH PROJECT
Richard L. Villoria, Houston Fearless Corporation

PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 5 (Jun./Jul. 1966)

THE EFFECT OF SENSITOMETRIC RESPONSE ON THE GEOMETRIC CHARACTERISTICS OF A PHOTOGRAPHICALLY RECORDED DIGITAL DATA
Dr. William A. Miller, Fairchild-Hiller, Inc.

THE MEANING OF NUMBERS TO PHOTOGRAPHIC PARAMETERS
Daan M. Zwick, Eastman Kodak Company

PROBLEMS PECULIAR TO SPECTRAL BALLISTIC CAMERA INSTRUMENTATION
Daniel J. Novak, Dynalectron Corporation

MOVING WINDOW DISPLAYS WITH 120"/MINUTE RAPID ACCESS PROCESSING CAPABILITY
John B. Taylor, HRB-Singer, Inc.

MINIATURIZED COMPONENTS FOR EMI SUPPRESSION IN PHOTO-OPTICAL CONTROL SYSTEMS
Arnold L. Albin and Edward I. Busch, Fairchild Space & Defense Systems

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

VOLUME IV – NO. 6 (Aug./Sep. 1966)

APPLICATIONS OF LASERS TO PHOTO-OPTICAL INSTRUMENTATION PROBLEMS
Robert L. Leighton, United Aircraft Research Laboratories

OPTICAL IMAGE PROCESSING IN INCOHERENT AND COHERENT ILLUMINATION
Dr. A.S. Marathay, Technical Operations Research

ULTIMATE SENSITIVITY OF SPACE-CAMERA IMAGING DEVICES WITH PARTICULAR REFERENCE TO THE SLOW-SCAN VIDICON
Leonard R. Malling, MIT Lincoln Laboratory

A PRACTICAL APPROACH TOWARD THE DETERMINATION OF RESOLUTION REQUIREMENTS
Jerrold Zimmerman, Itek Corporation

PHYSICAL OPTICS NOTEBOOK - PHOTO-OPTICS NOTE BOOK

*****

Journal Index - by Author

VOLUMES I, II, III, IV

"A"

ALBIN, ALBERT L., Fairchild Space and Defense Systems
Miniaturized Components for EMI Suppression in Photo-optical Control Systems (Vol. IV - No. 5)

ALLEN, J. DENTON, Jet Propulsion Laboratories
A Mars Photographic System (Vol. II - No. 6)

ANDERSON, R. WAYNE, The Dow Chemical Company
High Speed Photo System to Record Crack Propagation Velocities in Brittle Fractures (Vol. II - No. 5)

ATKINSON, DR. JOHN H. JR., Aeronautronic
Atmospheric Limitations on Ground Resolutions from Space Photography (Vol. I - No. 2)

"B"

BACK, FRANK G., Zoomar, Inc.
New Concepts for Photographic Lens Evaluation (Vol. I - No. 1)

BERGMAN, TRUMAN G., U.S. Naval Ordnance Test Station
Improved Trajectory Recording with Lasar Rangefinder (Vol. III - No. 3)

BILLINGSLEY, FRED C., Jet Propulsion Laboratory
Processing Ranger and Mariner Photography (Vol. IV - No. 4)

BISHOP, DR. E.H., University of Texas
Photographic Studies of Convection Patterns between Concentric Spheres (Vol. III - No. 2)

BLEYMAIER, BRIGADIER GENERAL JOSEPH S., COMMANDER, Air Force Western Test Range
Challenges for Tomorrow (Vol. III - No. 6)

BLOCK, ART, U.S. Naval Ordnance Test Station
Airborne Camera Capsule (Vol. I - No. 5)

BLOOMER, JOHN H., Consultant
Liquid Space Optics (Vol. IV - No. 2)

BOBBE, RICHARD M., Xerox Corporation
An Instrument for Determining the Lens Spectral Transmittance (Vol. IV - No. 3)

BOESCHENSTEIN, HAROLD JR., Harvard College Observatory
The Prairie Meteorite Network (Vol. III - No. 4)

BOROUGH, HOWARD C., The Boeing Company
Some Considerations in Using Fiber Optics Image Couplers (Vol. II - No. 5)

BRICE, ARTHUR T., Phase Films,
Cinemicrography in Cell Biology (Vol. IV - No. 4)

BRINKMANN, JOHN R., NASA Manned Spacecraft Center
Photographic Requirements for Manned Space Missions (Vol. III - No. 3)

BRUNDAGE, WALTER L. JR., U.S. Naval Research Laboratory
Ocean Bottom Photography from a Deep Towed Camera System (Vol. IV - No. 4)

BUSCH, EDWARD, Fairchild Space and Defense Systems
Miniaturized Components for EMI Suppression in Photo-optical Control Systems (Vol. IV - No. 5)

"C"

CLARK, DR. GEORGE L., Electro-Optical Systems, Inc.
Light Economics in High-speed Photography (Vol. I - No. 4)
Image Converter Shutters (Vol. II - No. 5)
Laser-Illuminated Photo-optical Instrumentation (Vol. III - No. 6)

CLARK, WALTER M., Northrop/Nortronics
Standards in Photometry (Vol. IV - No. 1)

COMSTOCK, DAVID W., Norden Division of United Aircraft Corporation
A New Digital Microganiometer Shaft Encoding System for High Resolution and High Accuracy Applications (Vol. I - No. 3)

CORDS, PAUL J., JR., U.S. Naval Ordnance Laboratory
Relating the Ansel Adams Zone System to the ASA Criteria for the Determination of Film Speeds (Vol. II - No. 6)

CUNNIFF, JOHN F., Perkin-Elmer Corporation
Range Application of Laser Systems (Vol. II - No. 2)

"D"

DARLING, WALTER R., National Bureau of Standards
Optical T-Bench Method for Measurement of Optical Path Difference (Vol. I - No. 6)

DERR, ALBERT J., General Aniline & Film Corp.
Computer Oriented Microdensitometers (Vol. IV - No. 1)

DURRENBERGER, J.E., White Sands Missile Range
Ballistic Camera Systems Approach Maturity (Vol. II - No. 6)

"E"

EDGERTON, DR. HAROLD E., Massachusetts Institute of Technology
Underwater Pinpoint Photography (Vol. II - No. 1)

EGGLESTON, JOHN M., NASA Manned Spacecraft Center
Photographic Requirements for Manned Space Missions (Vol. III - No. 3)

ENDELMAN, LINCOLN L., Consultant
The Use of High-Speed Cameras for Metric Photography (Vol. I - No. 4)

ERF, ROBERT K., United Aircraft Research Laboratories
Applications of Laser Beam Scanning Systems Employing Ultrasonic Techniques (Vol. III - No. 6)

"F"

FATORA, DAVID A., U.S. Naval Ordnance Laboratory
Relating the Ansel Adams Zone System to the Asa Criteria for the Determination of Film Speeds (Vol. II - No. 6)

FLYNN, DR. P.D., Frankford Arsenal
High-Speed Photographic Studies of Dynamic Stresses in Low Modulus Photoelastic Materials (Vol. I - No. 3)

Some Recent Developments in Dynamic Photo-elasticity (Vol. II - No. 4)

"G"

GILBERT, J.T., Frankford Arsenal
High-speed Photographic Studies of Dynamic Stresses in Low Modulus Photoelastic Materials (Vol. I - No. 3)

Some Recent Developments in Dynamic Photoelasticity Vol. II - No. 4)

GILLMER, A.H., Korad Corporation
500 Megawatt Pulsed Laser (Vol. II - No. 2)

GUSTAFSON, HELEN E., Nuclear Research Instruments
Automated Stargazing (Vol. II - No. 3)

GUTLOVE, NORMAN N., Republic Aviation Corporation
Bright Spot Detection and Location in a Scanned Scene (Vol. III - No. 5)

"H"

HASCALL, J.L., Battelle Memorial Institute
Autoradiography of Nuclear Materials (Vol. IV - No. 4)

HAYES, JOHN D., Xerox Corporation
The Projection and Viewing of Transparent Image Storage Materials (Vol. II - No. 6)

HILBORN, EDWIN C., ITT Information and Data Systems Division
Improving Information Transfer from Display to Observer (Vol. II - No. 4)

HOUGH, DR. PAUL V.C., Brookhaven National Laboratory
Man-Machine Collaboration in the Analysis of Bubble Chamber Photography for High-Energy Physics (Vol. II - No. 3)

HORN, G.R., Battelle Memorial Institute
Autoradiography of Nuclear Materials (Vol. IV - No. 4)

"J"

JONES, DR. R. CLARK, Polaroid Corporation
Symbols, Units and Nomenclature for Atmospheric Transmission (Vol. IV - No. 3)

JONES, ROBERT E., Aeronutronic
Atmospheric Limitations on Ground Resolutions from Space Photography (Vol. I - No. 2)

"K"

KOLFLAT, R.S., University of Texas
Photographic Studies of Convection Patterns between Concentric Spheres (Vol. III - No. 2)

KAWACHI, DONALD, Fairchild Space & Defense Systems
Image Displacements on a Tilted Panoramic Photograph Vol. I - No. 3)

KINDER, FLOYD, U.S. Naval Ordnance Test Station,
Underwater Light Attenuation Measurements (Vol. IV - No. 2)

KOCHER, DAVID G., Massachusetts Institute of Technology
A Multiple-Spark Light Source and Camera for Schlieren and Silhouette Photography (Vol. I - No. 6)

KRETSCHMER, HANS H., Douglas Aircraft Company, Inc.
A Camera Platform in Space (Vol. I - No. 4)

KRUSE, PAUL J., Jr., U.S. Fish & Wildlife Service
Underwater Photographic Instrumentation Design (Vol. II - No. 6)

UNDERWATER TECHNIQUES Series (Vol. II, Nos. 1,2,3,4,5) (Vol. III, Nos. 1,3,4)

"L"

La VALLEE, RONALD J., McDonnell Aircraft Corporation
The Use of Characteristic Vectors in Photo-optical Analysis (Vol. III - No. 6)

LEIGHTON, ROBERT L., United Aircraft Research Laboratories
Applications of Lasers to Photo-Optical Instrumentation Problems (Vol. IV - No. 6)

LEITH, DR. EMMETT N., University of Michigan
Imagery with Coherent Optics (Vol. III - No. 4)

Holograms: Their Properties and Uses (Vol. IV - No. 1)

"M"

MACK, DR. L.R., University of Texas
Photographic Studies of Convection Patterns between Concentric Spheres (Vol. III - No. 2)

"M" (con't)

MALLING, LEONARD R., MIT Lincoln Laboratory
Time-Bandwidth Compression for Planetary Pictures (Vol. III - No. 1)

Ultimate Sensitivity of Space-Camera Imaging Devices with Particular Reference to the Slow-Scan Vidicon (Vol. IV - No. 6)

MANNING, WALTER H., Jr., USAF Eastern Test Range
Advances in Image Enhancement Techniques at the Atlantic Missile Range (Vol. III - No. 5)

MANSBERG, H.P., Airborne Instruments Laboratory (Cutler-Hammer, Inc.)
Photo-optical Field Measurement by Flying Spot Scanners for Biomedical Applications (Vol. II - No. 3)

MARATHAY, DR. ARWIND S., Technical Operations Research
Optical Image Processing in Incoherent and Coherent Illumination (Vol. IV - No. 6)

MARKHAM, ALAN S., The Bendix Corporation
Photographic Techniques for Project Mercury Ground Range Evaluation (Vol. I - No. 2)

McCROSKY, RICHARD E., Smithsonian Astrophysical Observatory
The PRAIRIE Meteorite Network (Vol. III - No. 4)

McFEE, DR. R.H., Aerojet-General Corporation
Information Processing in Infrared Systems (Vol. II - No. 1)

McNEIL, GOMER T., Photogrammetry, Inc.
Underwater Camera Calibrator (Vol. IV - No. 3)

MEIER, DR. ING. H.K., Oberkochen
Uses of Infrared Emulsions for Photogrammetric Purposes Vol. I - No. 1)

MERCHANT, JOHN, Honeywell Radiation Center
Oculometry (Vol. IV - No. 2)

MESNER, M.H., Radio Corporation of America
Vidicon Applications for Space-Borne TV Cameras (Vol. III - No. 3)

MICANEK, GARY A., McDonnell Aircraft Corporation
A Stability Study of the Photographic Latent Image (Vol. IV - No. 3)

MILLER, DR. WILLIAM A., Fairchild-Hiller, Inc.
The Effect of Sensitometric Response on the Geometric Characteristics of Photographically Recorded Digital Data (Vol. IV - No. 5)

MILLIKEN, ROBERT J., National Weather Records Center
The Fosdic System and the Requirements for Clean Room Printing and Processing (Vol. III - No. 5)

MORRISON, SOL L., Republic Aviation Corporation
Bright Spot Detection and Location in a Scanned Scene (Vol. III - No. 5)

"N"

NAPOR, CARL A., Aeroflex Laboratories, Inc.
Ultra Stable Camera Platforms (Vol. I - No. 4)

NEUBERGER, THOMAS P., American Car Foundry Ind., Inc.
Optical Techniques of Visual Simulation for Space Travel (Vol. III - No. 2)

NICOLA, JOHN F., Pan American Airways
Future Range Instrumentation (Vol. I - No. 2)

NOVAK, DANIEL J., Dynalectron Corp.
Problems Peculiar to Spectral Ballistic Camera Instrumentation (Vol. IV - No. 5)

"P"

PARRENT, DR. GEORGE B., Technical Operations Research, Inc.
Resolution Limitations of Lensless Photography (Vol. III - No. 6)

PHYSICAL OPTICS NOTEBOOK
Article 1 - Huygen's Principle (Vol. III, No. 2)
Article 2 - Fourier Transforms (Vol. III, No. 3)
Article 3 - Array Theorem (Vol. III, No. 4)
Article 4 - Image Formation - The Impulse Response (Vol. III, No. 5)
Article 5 - Image Formation in Terms of the Impulse Response (Vol. III, No. 6)
Article 6 - Resolution in Terms of the Impulse Response (Vol. IV, No. 1)
Article 7 - Image Formation - The Transfer Function (Vol. IV, No. 2)
Article 8 - Image Formation in Terms of the Transfer Function (Vol. IV, No. 3)
Article 9 - Fresnel Diffraction (Vol. IV, No. 5)
Article 10 - Partially Coherent Light (Vol. IV, No. 6)

PATTERSON, R.B., U.S. Naval Research Laboratory
Ocean Bottom Photography from a Deep Towed Camera System (Vol. IV - No. 4)

PEPPERS, DR. NORMAN A., Optics Technology, Inc.
Laser Safety Standards (Vol. IV - No. 3)

PFEIFFER, PAUL C., Texas Instruments, Inc.
High Speed Macrophotography used in Semi-Conductor Manufacturing (Vol. IV - No. 2)

POTTER, DR. ROBERT J., International Business Machines Corporation .
An Optical Character Scanner (Vol. II - No. 3)

"R"

RENOLD, WALTER, The Marquardt Corporation
A New Photo-optical, Random-access Memory (Vol. I - No. 2)

REYNOLDS, GEORGE O., Technical Operations Research, Inc.
Resolution Limitations of Lensless Photography (Vol. III - No. 6)

"R" (con't)

ROLL, A.A., Frankford Arsenal
High-Speed Photographic Studies of Dynamic Stresses in Low Modulus Photoelastic Materials (Vol. I - No. 3)

Some Recent Developments in Dynamic Photoelasticity (Vol. II - No. 4)

"S"

SANDS, BRIGADIER GENERAL HARRY J. Jr., Commander, Ballistic Systems Division
Focus on the Future (Vol. III - No. 1)

SATTERFIELD, JAMES M., NASA Langley Research Center
The NASA-LRC Telespectrograph Test and Operation Results (Vol. III - No. 5)

SCOTT, DR. RODERIC M., Perkin-Elmer Corporation
The Practical Applications of Modulation Transfer Functions (Vol. II - No. 4)

SEBESTYEN, DR. GEORGE S., Litton Systems, Inc.
Machine Aided Reconnaissance Photo-Interpretation (Vol. II - No. 3)

SCANLAN, DR. J.A., University of Texas
Photographic Studies of Convection Patterns between Concentric Spheres (Vol. III - No. 2)

SCHARRER, R.G., Sandia Corporation
Automatic and Programmed Tracking Systems for Optical Instrumentation (Vol. I - No. 5)

SCHEPLER, HERMAN C., Consultant
PHOTO-OPTICS NOTE BOOK
Properties of Light (Vol. I, No. 1)
Optical Properties of Materials (Vol. I. No. 2)
Mirrors and Prisms (Vol. I, No. 3)
Lenses (Vol. I, No. 4)
The Conic Sections (Vol. I, No. 5)
Constructions for the Conic Sections (Vol. I, No. 6)
Prerequisites for Optical Ray Tracing (Vol. II, No. 1)
Optical Ray Tracing - I, II, III, IV, V (Vol. II, Nos. 2,3,4,5,6)
Optical Formulary - (Vol. III, Nos. 1,2,3,4,5,6, Vol. IV, Nos. 1,2,3,4,5,6)

SCHROEDER, HAROLD H., Bausch & Lomb, Inc.
Optical Coatings (Vol. I - No. 5)

SCHULTZ, HARVEY, Korad Corporation
500 Megawatt Pulsed Laser (Vol. II - No. 2)

SHAVLACH, ROSTYSLAV, Radio Corporation of America
A Television Image Simulator and its Practical Applications (Vol. III - No. 1)

SHERBURNE, DR. RUSSELL K., White Sands Missile Range
Research at a Government Agency - W.S.M.R. (Vol. I - No. 3)

SIME, KENNETH T., USAF Aeronautical Chart & Information Center
Design Parameters of an Astronomical Camera for Lunar Charting (Vol. IV - No. 2)

SMITH, ARCH D., Martin-Marietta Corporation
Engineering Photo Methods for Titan II R & D Flight Program (Vol. III - No. 2)

SPIRO, IRVING J., Aerospace Corporation
Infrared – Today and Tomorrow (Vol. II - No. 1)

Image Motion and Resolution for Air-to-Air Photography (Vol. III - No. 2)

Symbols, Units and Nomenclature for Atmospheric Transmission (Vol. IV - No. 3)

SPITZAK, ALBERT, Jet Propulsion Laboratories
Spacecraft Film System for Planetary Photography (Vol. III - No. 3)

STALEY, ALAN A., International Business Machines Corporation
Some Applications of Photo-optics in Medical Information Handling (Vol. III - No. 4)

STARKWEATHER, GARY K., Xerox Corporation
An Instrument for Determining the Lens Spectral Transmittance (Vol. IV - No. 3)

ST. THOMAS, JEAN, RCA Service Corporation
A Proposed Codification for Photo-optical Instrumentation (Vol. II - No. 2)

"T"

TAYLOR, JOHN B., HRB-Singer, Inc.
Moving Window Displays with 120"/Minute Rapid Access Processing Capability (Vol. IV - No. 5)

TEMPLE, R.A., Electro-Optical Systems, Inc.
Optical Design of Infrared Systems (Vol. II - No. 1)

THOMAS, GEORGE W., U.S. Naval Ordnance Laboratory
Requirements for a Dual-Lens Camera (Vol. I - No. 1)

THOMPSON, DR. BRIAN J., Technical Operations Research
Diffraction by Opaque and Transparent Particles (Vol. II - No. 2)

Advantages and Problems of Coherence as Applied to Photographic Situations (Vol. IV - No. 1)

PHYSICAL OPTICS NOTEBOOK
Article 1 - Huygen's Principle (Vol. III, No. 2)
Article 2 - Fourier Transforms (Vol. III, No. 3)
Article 3 - Array Theorem (Vol. III, No. 4)
Article 4 - Image Formation - The Impulse Response (Vol. III, No. 5)
Article 5 - Image Formation in Terms of the Impulse Response (Vol. III, No. 6)
Article 6 - Resolution in Terms of the Impulse Response (Vol. IV, No. 1)
Article 7 - Image Formation - The Transfer Function (Vol. IV, No. 2)
Article 8 - Image Formation in Terms of the Transfer Function (Vol. IV, No. 3)
Article 9 - Fresnel Diffraction (Vol. IV, No. 5)
Article 10 - Partially Coherent Light (Vol. IV, No. 6)

"T" (con't)

THOMPSON, DR. JULIAN L., U.S. Naval Ordnance Test Station
The U.S. Naval Ordnance Test Station's Experimental Tracking Error Detector (Vol. II - No. 5)

TODD, H.N., Rochester Institute of Technology
Image Evaluation (Vol. I - No. 5)

TYSON, GEORGE P., U.S. Naval Missile Center
"MOPTS" – A Mobile Photographic Tracking System (Vol. I - No. 1)

"U"

UPATNIEKS, JURIS, University of Michigan
Imagery with Coherent Optics (Vol. III - No. 4)

Holograms: Their Properties and Uses (Vol. IV - No. 1)

"V"

VILLORIA, RICHARD L, Houston Fearless Corporation
New Product Development from a Research Project (Vol. IV - No. 4)

VOGL, THOMAS P., Westinghouse Research Laboratories
An f/0.75 Diffraction Limited Triplet for the 8-12 Micron Atmospheric Window (Vol. I - No. 6)

"W"

WARK, DR. DAVID Q., Environmental Science Services Administration
Symbols, Units and Nomenclature for Atmospheric Transmission (Vol. IV - No. 3)

WASHER, DR. FRANCIS E., National Bureau of Standards
Optical T-Bench Method for Measurement of Optical Path Difference (Vol. I - No. 6)

WILEY, DAVID G., Kine-X Engineering Corporation
Enhancement of Photographic Speed by Electric Fields (Vol. III - No. 1)

WINSKI, FRANK S., Xerox Corporation
An Instrument for Determining the Lens Spectral Transmittance (Vol. IV - No. 3)

"Z"

ZAKIA, R.D., Rochester Institute of Technology
Image Evaluation (Vol. I - No. 5)

ZIMMERMAN, JERROLD, Itek Corporation
A Practical Approach toward the Determination of Resolution Requirements (Vol. IV - No. 6)

ZWICK, DAAN M., Eastman Kodak Company
The Meaning of Numbers to Photographic Parameters (Vol. IV - No. 5)

OPTICS by PHOTRONICS

In the design and manufacture of complex optical systems and components, experience and capability are requisite factors for high quality. This is the story behind the success of Photronics!

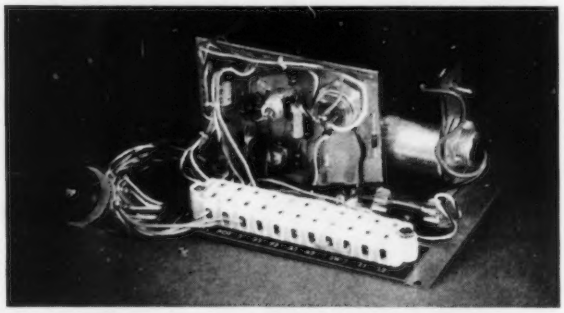
LENSES • PRISMS • SHORT FOCUS PARABOLAS • TRACKING BINOCULARS • TRACKING TELESCOPES • PHOTOGRAPHIC OBJECTIVES . . . REFRACTOR AND REFLECTOR TYPES • CASSEGRAIN SYSTEMS • ATOMIC VIEWING DEVICES • PERISCOPES • METAL OPTICS

PHOTRONICS CORPORATION

36-17 PRINCE STREET, FLUSHING, N.Y. 11354
212 - 463-4100

New from Heller!

SCR OPEN-FRAME MOTOR CONTROLLERS



GKH open-frame SCR variable speed motor controllers have been especially designed for equipment manufacturers. Rated 1/8-HP, the Heller SX10-11 shown here maintains infinitely variable pre-set speed regardless of changing loads or line voltages, operating from 100-130 volts 50-60 cps AC. Bulletin 601 gives complete specifications, dimensions and configurations of controllers for 1/40- to 1/3-HP motors. Stock motors, plain and gearhead, are listed in accompanying price list.

GKH GERALD K. HELLER COMPANY
Box 4426 • Las Vegas, Nev. 89106
249-06 Jericho Turnpike • Bellerose, N. Y. 11426
Tel. – New York: 212–347-8980 • Chicago: 312–631-5488
S. Calif.: 213–469-7393 • N. Calif.: 415–321-6408

Journal Index - by Topic

VOLUMES I, II, III, IV

CAMERAS/MOVEMENTS:

REQUIREMENTS FOR A DUAL-LENS CAMERA
George W. Thomas, U.S. Naval Ordnance Laboratory
(Vol. I - No. 1)

A NEW PHOTO-OPTICAL, RANDOM-ACCESS MEMORY
Walter Renold, The Marquardt Corporation (Vol. I - No. 2)

A CAMERA PLATFORM IN SPACE
Hans H. Kretschmer, Douglas Aircraft Company, Inc.
(Vol. I - No. 4)

ULTRA STABLE CAMERA PLATFORMS
Carl A.Napor, Aeroflex Laboratories, Inc. (Vol. I - No. 4)

AIRBORNE CAMERA CAPSULE
Art Block, U.S. Naval Ordnance Test Station (Volume I - No. 5)

DESIGN PARAMETERS OF AN ASTRONOMICAL CAMERA FOR LUNAR CHARTING
Kenneth T. Sime, USAF Aeronautical Chart & Information Center (Volume IV - No. 2)

FILMS:

RELATING THE ANSEL ADAMS ZONE SYSTEM TO THE ASA CRITERIA FOR THE DETERMINATION OF FILM SPEEDS
Paul H. Cords, Jr., and David A. Fatora, U.S. Naval Ordnance Laboratory (Vol. II - No. 6)

SPACECRAFT FILM SYSTEM FOR PLANETARY PHOTOGRAPHY
Albert Spitzak, Jet Propulsion Laboratories (Vol. III - No. 3)

A STABILITY STUDY OF THE PHOTOGRAPHIC LATENT IMAGE
Gary A. Micanek, McDonnell Aircraft Corporation
(Vol. IV - No. 3)

HIGH-SPEED:

HIGH-SPEED PHOTOGRAPHIC STUDIES OF DYNAMIC STRESSES IN LOW MODULUS PHOTOELASTIC MATERIALS
Dr. P.D. Flynn, J.T. Gilbert, and A.A. Roll, Frankford Arsenal (Vol. I - No. 3)

LIGHT ECONOMICS IN HIGH-SPEED PHOTOGRAPHY
Dr. George L. Clark, Space Technology Laboratories, Inc
(Vol. I - No. 4)

A MULTIPLE-SPARK LIGHT SOURCE AND CAMERA FOR SCHLIEREN AND SILHOUETTE PHOTOGRAPHY
David G. Kocher, Massachusetts Institute of Technology
(Vol. I - No. 6)

IMAGE CONVERTER SHUTTERS
Dr. George L. Clark, Electro-Optical Systems, Inc. (Vol. II - No. 5)

HIGH SPEED PHOTO SYSTEM TO RECORD CRACK PROPAGATION VELOCITIES IN BRITTLE FRACTURES
R. Wayne Anderson, The Dow Chemical Company
(Vol. II - No. 5)

THE USE OF HIGH-SPEED CAMERAS FOR METRIC PHOTOGRAPHY
Lincoln L. Endelman, Consultant (Vol. I - No. 4)

IMAGERY:

ATMOSPHERIC LIMITATIONS ON GROUND RESOLUTIONS FROM SPACE PHOTOGRAPHY
Dr. John H. Atkinson, Jr., and Robert E. Jones, Aeronutronic Div., Philco/Ford (Vol. I - No. 2)

IMAGE EVALUATION
R.D. Zakia and H.N. Todd, Rochester Institute of Technology
(Vol. I - No. 5)

DIFFRACTION BY OPAQUE AND TRANSPARENT PARTICLES
Dr. Brian J. Thompson, Technical Operations Research
(Vol. II - No. 2)

AN OPTICAL CHARACTER SCANNER
Dr. Robert J. Potter, International Business Machines Corporation (Vol. II - No. 3)

MAN-MACHINE COLLABORATION IN THE ANALYSIS OF BUBBLE CHAMBER PHOTOGRAPHY FOR HIGH-ENERGY PHYSICS
Dr. Paul V.C. Hough, Brookhaven National Laboratory
(Vol. II - No. 3)

AUTOMATED STARGAZING
Helen E. Gustafson, Nuclear Research Instruments
(Vol. II - No. 3)

THE PRACTICAL APPLICATIONS OF MODULATION TRANSFER FUNCTIONS
Dr. Roderic M. Scott, Perkin-Elmer Corporation
(Vol. II - No. 4)

ENHANCEMENT OF PHOTOGRAPHIC SPEED BY ELECTRIC FIELDS
David G. Wiley, Kine-X Engineering Corporation
(Vol. III - No. 1)

IMAGE MOTION AND RESOLUTION FOR AIR-TO-AIR PHOTOGRAPHY
Irving J. Spiro, Aerospace Corporation (Vol. III - No. 2)

IMAGERY WITH COHERENT OPTICS
Emmett N. Leith and Juris Upatnieks, University of Michigan
(Vol. III - No. 4)

IMAGERY: (con't)

ADVANCES IN IMAGE ENHANCEMENT TECHNIQUES AT THE ATLANTIC MISSILE RANGE
Walter H. Manning, Jr., U.S.A.F. Eastern Test Range
(Vol. III - No. 5)

THE EFFECT OF SENSITOMETRIC RESPONSE ON THE GEOMETRIC CHARACTERISTICS OF PHOTOGRAPHICALLY RECORDED DIGITAL DATA
Dr. William A. Miller, Fairchild-Hiller, Inc. (Vol. IV - No. 5)

ULTIMATE SENSITIVITY OF SPACE-CAMERA IMAGING DEVICES WITH PARTICULAR REFERENCE TO THE SLOW-SCAN VIDICON
Leonard R. Maling, MIT Lincoln Laboratory (Vol. IV - No. 6)

A PRACTICAL APPROACH TOWARD THE DETERMINATION OF RESOLUTION REQUIREMENTS
Jerrold Zimmerman, Itek Corporation (Vol. IV - No. 6)

INFRARED:

USES OF INFRARED EMULSIONS FOR PHOTOGRAMMETRIC PURPOSES
Dr. –Ing. H.K. Meier, Oberkochen (Vol. I - No. 1)

INFRARED – TODAY AND TOMORROW
Irving J. Spiro, Aerospace Corporation (Vol. II - No. 1)

OPTICAL DESIGN OF INFRARED SYSTEMS
R.A. Temple, Electro-Optical Systems, Inc. (Vol. II - No. 1)

INFORMATION PROCESSING IN INFRARED SYSTEMS
Dr. R.H. McFee, Aerojet-General Corporation (Vol. II - No. 1)

LASER:

RANGE APPLICATION OF LASER SYSTEMS
John F. Cunniff, Perkin-Elmer Corporation (Vol. II - No. 2)

500 MEGAWATT PULSED LASER
A.H. Gillmer and Harvey Schultz, Korad Corporation
(Vol. II - No. 2)

IMPROVED TRAJECTORY RECORDING WITH LASER RANGEFINDER
Truman G. Bergman, U.S. Naval Ordnance Test Station
(Vol. III - No. 3)

LASER-ILLUMINATED PHOTO-OPTICAL INSTRUMENTATION
Dr. George L. Clark, Electro-Optical Systems, Inc.
(Vol. III - No. 6)

APPLICATIONS OF LASER BEAM SCANNING SYSTEMS EMPLOYING ULTRASONIC TECHNIQUES
Robert K. Erf, United Aircraft Research Labs. (Vol. III - No. 6)

ADVANTAGES AND PROBLEMS OF COHERENCE AS APPLIED TO PHOTOGRAPHIC SITUATIONS
Dr. Brian J. Thompson, Technical Operations Research
(Vol. IV - No. 1)

LASER SAFETY STANDARDS
Dr. Norman A. Peppers, Optics Technology, Inc.
(Vol. IV - No. 3)

APPLICATIONS OF LASERS TO PHOTO-OPTICAL INSTRUMENTATION PROBLEMS
Robert L. Leighton, United Aircraft Research Labs.
(Vol. IV - No. 6)

OPTICAL IMAGE PROCESSING IN INCOHERENT AND COHERENT ILLUMINATION
Dr. A.S. Marathay, Technical Operations Research
(Vol. IV - No. 6)

LENSES:

NEW CONCEPTS FOR PHOTOGRAPHIC LENS EVALUATION
Dr. Frank G. Back, Zoomar, Inc. (Vol. I - No. 1)

OPTICAL COATINGS
Harold H. Schroeder, Bausch & Lomb, Inc. (Vol. I - No. 5)

AN f/0.75 DIFFRACTION LIMITED TRIPLET FOR THE 8-12 MICRON ATMOSPHERIC WINDOW
Thomas P. Vogl, Westinghouse Research Labs (Vol. I - No. 6)

AN INSTRUMENT FOR DETERMINING THE LENS SPECTRAL TRANSMITTANCE
Frank S. Winski, Richard M. Bobbe and Gary K. Starkweather, Xerox Corporation (Vol. IV - No. 3)

MEASUREMENTS:

OPTICAL T-BENCH METHOD FOR MEASUREMENT OF OPTICAL PATH DIFFERENCE
Dr. Francis E. Washer and Walter R. Darling, National Bureau of Standards, (Vol. I - No. 6)

STANDARDS IN PHOTOMETRY
Walter M. Clark, Northrop/Nortronics (Vol. IV - No. 1)

COMPUTER ORIENTED MICRODENSITOMETERS
Albert J. Derr, Gen. Aniline & Film Corp. (Vol. IV - No. 1)

SYMBOLS, UNITS AND NOMENCLATURE FOR ATMOSPHERIC TRANSMISSION
Irving J. Spiro, Aerospace Corporation
Dr. R. Clark Jones, Polaroid Corporation
Dr. David Q. Wark, Environmental Science Services Administration
(Vol. IV - No. 3)

THE MEANING OF NUMBERS TO PHOTOGRAPHIC PARAMETERS
Daan M. Zwick, Eastman Kodak Company (Vol. IV - No. 5)

MEDICAL:

PHOTO-OPTICAL FIELD MEASUREMENT BY FLYING SPOT SCANNERS FOR BIOMEDICAL APPLICATIONS
H.P. Mansberg, Airborne Instruments Laboratory (Cutler-Hammer, Inc.) (Vol. II - No. 3)

MEDICAL: (con't)

SOME APPLICATIONS OF PHOTO-OPTICS IN MEDICAL INFORMATION HANDLING
Alan A. Staley, International Business Machines Corporation
(Vol. III - No. 4)

CINEMICROGRAPHY IN CELL BIOLOGY
Arthur T. Brice, Phase Films

OPTICS:

PHOTO-OPTICS NOTE BOOK
Herman C. Schepler, Consultant
Properties of Light (Vol. I, No. 1)
Optical Properties of Materials (Vol. I. No. 2)
Mirrors and Prisms (Vol. I, No. 3)
Lenses (Vol. I, No. 4)
The Conic Sections (Vol. I, No. 5)
Constructions for the Conic Sections (Vol. I, No. 6)
Prerequisites for Optical Ray Tracing (Vol. II, No. 1)
Optical Ray Tracing - I, II, III, IV, V
(Vol. II, Nos. 2,3,4,5,6)
Optical Formulary - (Vol. III, Nos. 1,2,3,4,5,6,
Vol. IV, Nos. 1,2,3,4,5,6)

PHYSICAL OPTICS NOTEBOOK
Dr. George B. Parrent, Jr., and Dr. Brian J. Thompson
Technical Operations Research
Article 1 - Huygen's Principle (Vol. III, No. 2)
Article 2 - Fourier Transforms (Vol. III, No. 3)
Article 3 - Array Theorem (Vol. III, No. 4)
Article 4 - Image Formation - The Impulse Response
(Vol. III, No. 5)
Article 5 - Image Formation in Terms of the Impulse
Response (Vol. III, No. 6)
Article 6 - Resolution in Terms of the Impulse Response
(Vol. IV, No. 1)
Article 7 - Image Formation - The Transfer Function
(Vol. IV, No. 2)
Article 8 - Image Formation in Terms of the Transfer
Function (Vol. IV, No. 3)
Article 9 - Fresnel Diffraction (Vol. IV, No. 5)
Article 10 - Partially Coherent Light (Vol. IV, No. 6)

PROCESSES:

THE PROJECTION AND VIEWING OF TRANSPARENT IMAGE STORAGE MATERIALS
John D. Hayes, Xerox Corporation (Vol. II - No. 6)

THE FOSDIC SYSTEM AND THE REQUIREMENTS FOR CLEAN ROOM PRINTING AND PROCESSING
Robert J. Milliken, National Weather Records Center
(Vol. III - No. 5)

THE USE OF CHARACTERISTIC VECTORS IN PHOTO-OPTICAL ANALYSIS
Ronald J. LaVallee, McDonnell Aircraft Corporation
(Vol. III - No. 6)

THE NEW ZOOMAR TRACKING TELESCOPE

with no relative motion between target image and reticle during entire zoom ... and 5x to 40x continuous magnification.

THE NEW ZOOMAR TRACKING TELESCOPE fits the present mounting flanges of the Photo-Sonics Cine Sextant, and the Optical Tracker IFLOT Mark III, and other mounts.

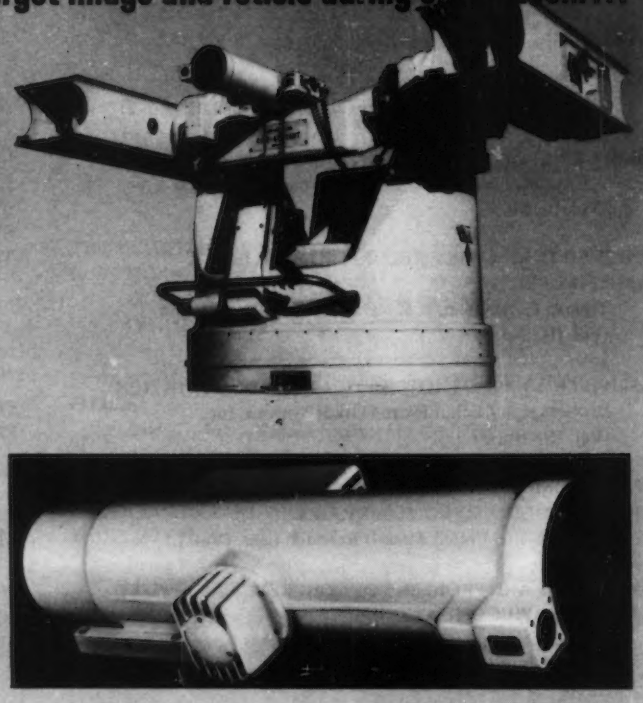
The most significant advantage of the new unit is the illuminated reticle. Remarkable for a zoom telescope is the fact that the reticle image does not shift from the optical center, but remains locked on the target over the entire zoom range.

FEATURES:

- Interchangeable eyepieces: 0°, 25°, 35°, and 45°, with approx. 60° viewing angle.
- Exit pupil of 2mm diameter with long eye relief.
- Automatic neutral density filter.
- Overall dimensions: 31" L x 6" D.
- Foot and hand switches operate motorized zoom.

For further information write:

ZOOMAR, INC.



PROCESSES: (con't)

AUTORADIOGRAPHY OF NUCLEAR MATERIALS
J.L. Hascall and G.R. Horn, Battelle Memorial Institute (Vol. IV - No. 4)

PROJECTS:

A PROPOSED CODIFICATION FOR PHOTO-OPTICAL INSTRUMENTATION
Jean St. Thomas, RCA Service Corporation (Vol. II - No. 2)

SOME RECENT DEVELOPMENTS IN DYNAMIC PHOTO-ELASTICITY
Dr. P.D. Flynn, J.T. Gilbert and A.A.Roll, Frankford Arsenal (Vol. II - No. 4)

SOME CONSIDERATIONS IN USING FIBER OPTICS IMAGE COUPLERS
Howard C. Borough, The Boeing Company (Vol. II - No. 5)

A MARS PHOTOGRAPHIC SYSTEM
J. Denton Allen, Jet Propulsion Laboratories (Vol. II - No. 6)

PHOTOGRAPHIC STUDIES OF CONVECTION PATTERNS BETWEEN CONCENTRIC SPHERES
Dr. E.H. Bishop, R.S. Kolflat, Dr. L.R. Mack and Dr. J.A. Scanlan, University of Texas (Vol. III - No. 2)

ENGINEERING PHOTO METHODS FOR TITAN II R&D FLIGHT PROGRAM
Arch D. Smith, Martin-Marietta Corporation (Vol. III - No. 2)

PHOTOGRAPHIC REQUIREMENTS FOR MANNED SPACE MISSIONS
John M. Eggleston and John R. Brinkmann, NASA Manned Spacecraft Center (Vol. III - No. 3)

THE PRAIRIE METEORITE NETWORK
Richard E. McCrosky, Smithsonian Astrophysical Observatory
Harold Boeschenstein, Jr., Harvard College Observatory (Vol. III - No. 4)

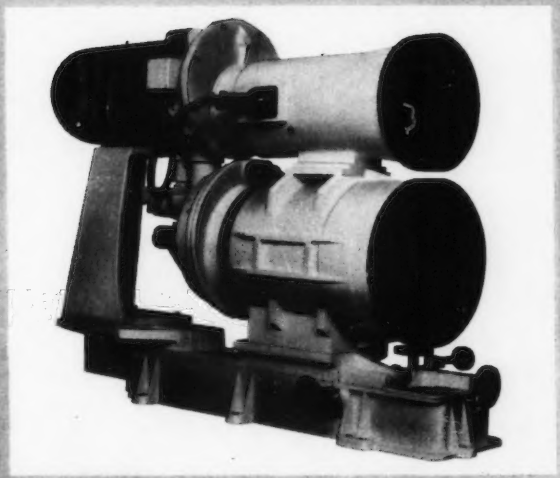
HIGH SPEED MACROPHOTOGRAPHY USED IN SEMI-CONDUCTOR MANUFACTURING
Paul C. Pfeiffer, Texas Instruments, Inc. (Vol. IV - No. 2)

LIQUID SPACE OPTICS
John H. Bloomer, Consultant (Vol. IV - No. 2)

PROCESSING RANGER AND MARINER PHOTOGRAPHY
Fred C. Billingsley, Jet Propulsion Laboratory (Vol. IV - No. 4)

NEW PRODUCT DEVELOPMENT FROM A RESEARCH PROJECT
Richard L. Villoria, Houston Fearless Corporation (Vol. IV - No. 4)

THE NEW ZOOMAR DUAL LENS TRACKING UNIT



It consists of an 80" Hyperstabilized F/11 Reflectar Lens and a Zoom Acquisition Optic of 3.5" – 35" zoom range.

Both lenses are remote-controlled for distance, iris, filter wheel and zoom, respectively.

The reticle projector has variable brightness, displaying the reticle image from either optic on a monitor. A fast acting optical switching device permits rapid changeover from zoom acquisition optic to 80° tracking lens. The unit is mounted on a heavy duty azimuth/elevation platform and meets or exceeds applicable military specifications.

ZOOMAR, INC.
GLEN COVE, N. Y. 11542 • 516 676-1900
HOLLYWOOD, CALIF. 90028 • 213 465-2769

RECONNAISSANCE:

IMAGE DISPLACEMENTS ON A TILTED PANORAMIC PHOTOGRAPH
Donald Kawachi, Fairchild Space & Defense Systems (Vol. I - No. 3)

MACHINE AIDED RECONNAISSANCE PHOTO-INTERPRETATION
Dr. George S. Sebestyen, Litton Systems, Inc. (Vol. II - No. 3)

MOVING WINDOW DISPLAYS WITH 120"/MINUTE RAPID ACCESS PROCESSING CAPABILITY
John B. Taylor, HRB-Singer, Inc. (Vol. IV - No. 5)

MINIATURIZED COMPONENTS FOR EMI SUPPRESSION IN PHOTO-OPTICAL CONTROL SYSTEMS
A.L. Albin and Edward Busch, Fairchild Space and Defense Systems (Vol. IV - No. 5)

SIMULTATION/HOLOGRAMS:

IMPROVING INFORMATION TRANSFER FROM DISPLAY TO OBSERVER
Edwin C. Hilborn, ITT Information and Data Systems Division (Vol. II - No. 4)

OPTICAL TECHNIQUES OF VISUAL SIMULATION FOR SPACE TRAVEL
Thomas P. Neuberger, American Car Foundry (Vol. III - No. 2)

RESOLUTION LIMITATIONS OF LENSLESS PHOTOGRAPHY
Dr. George B. Parrent, Jr., and George O. Reynolds, Technical Operations Research, Inc. (Vol. III - No. 6)

HOLOGRAMS: Their Properties and Uses
Dr. Emmett N. Leith and Juris Upatnieks, University of Michigan (Vol. IV - No. 1)

OCULOMETRY
John Merchant, Honeywell Radiation Center (Vol. IV - No. 2)

TELEVISION:

A TELEVISION IMAGE SIMULATOR AND ITS PRACTICAL APPLICATIONS
Rostyslav Shavlach, Radio Corporation of America (Vol. III - No. 1)

TIME-BANDWIDTH COMPRESSION FOR PLANETARY PICTURES
Leonard R. Malling, Jet Propulsion Laboratory (Vol. III - No. 1)

VIDICON APPLICATIONS FOR SPACE-BORNE TV CAMERAS
M.H. Mesner, Radio Corporation of America (Vol. III - No, 3)

BRIGHT SPOT DETECTION AND LOCATION IN A SCANNED SCENE
Sol L. Morrison and Norman N. Gutlove, Republic Aviation Corporation (Vol. III - No. 5)

TRACKING/RANGE:

"MOPTS" = A MOBILE PHOTOGRAPHIC TRACKING SYSTEM
George P. Tyson, U.S. Naval Missile Center (Vol. I - No. 1)

PHOTOGRAPHIC TECHNIQUES FOR PROJECT MERCURY GROUND RANGE EVALUATION
Alan S. Markham, The Bendix Corporation (Vol. I - No. 2)

FUTURE RANGE INSTRUMENTATION
John F. Nicola, Pan American Airways (Vol. I - No. 2)

A NEW DIGITAL MICROGONIOMETER SHAFT ENCODING SYSTEM FOR HIGH RESOLUTION AND HIGH ACCURACY APPLICATIONS
David W. Comstock, Norden Division of United Aircraft Corporation (Vol. I - No. 3)

RESEARCH AT A GOVERNMENT AGENCY - W.S.M.R.
Dr. Russell K. Sherburne, White Sands Missile Range (Vol. I - No. 3)

AUTOMATIC AND PROGRAMMED TRACKING SYSTEMS FOR OPTICAL INSTRUMENTATION
R.G. Scharrer, Sandia Corporation (Vol. I - No. 5)

THE U.S. NAVAL ORDNANCE TEST STATION'S EXPERIMENTAL TRACKING ERROR DETECTOR
Dr. Julian L. Thompson, U.S. Naval Ordnance Test Station (Vol. II - No. 5)

BALLISTIC CAMERA SYSTEMS APPROACH MATURITY
J.E. Durrenberger, White Sands Missile Range (Vol. II - No. 6)

THE NASA-LRG TELESPECTROGRAPH TEST AND OPERATION RESULTS
James M. Satterfield, NASA Langley Research Center (Vol. III - No. 5)

PROBLEMS PECULIAR TO SPECTRAL BALLISTIC CAMERA INSTRUMENTATION
Daniel J. Novak, Dynalectron Corporation. (Vol. IV - No. 5)

UNDERWATER:

UNDERWATER PINPOINT PHOTOGRAPHY
Dr. Harold E. Edgerton, Massachusetts Institute of Technology (Vol. II - No. 1)

UNDERWATER PHOTOGRAPHIC INSTRUMENTATION DESIGN
Paul J. Kruse, Jr., U.S. Fish & Wildlife Service (Vol. II - No. 6)

UNDERWATER LIGHT ATTENUATION MEASUREMENTS
Floyd Kinder, U.S. Naval Ordnance Test Station (Vol. IV - No. 2)

UNDERWATER CAMERA CALIBRATOR
Gomer T. McNeil, Photogrammetry, Inc. (Vol. IV - No. 3)

OCEAN BOTTOM PHOTOGRAPHY FROM A DEEP TOWED CAMERA SYSTEM
Walter L. Brundage, Jr. and R.B. Patterson, U.S. Naval Research Laboratory (Vol. IV - No. 4)

UNDERWATER TECHNIQUES
Paul J. Kruse, Jr., U. S. Fish & Wildlife Service (Vol. II, Nos. 1,2,3,4,5) (Vol. III, Nos. 1,3,4)